

REMARKS

Claims 1, 3-8, 10-15, 17-21, 23-31, all the claims pending in the application, stand rejected on prior art grounds and upon informalities. Claims 1, 3-27, and 28-31 stand rejected upon double patenting. Applicants respectfully traverse these rejections based on the following discussion.

I. The 35 U.S.C. §112, First Paragraph, Rejection

Claims 1, 3-8, 10-15, 17-21, and 23-31 stand rejected under 35 U.S.C. §112, first paragraph. Specifically, the Office Action asserts that the claim limitation “wherein said nodes in said distributed tree lack group state information” is not found in the specification (Office Action, p. 2, item 3). Applicants respectfully disagree and submit that Applicants’ disclosure discusses stateless group communication between the nodes of the distribution tree.

More specifically, as described in paragraph 0018 of Applicants’ disclosure, some protocols maintain state information at the nodes involved in a group communication session. However, the invention provides group communication by fully encoding communication trees at the sender to allow stateless operation. One of the advantages of stateless group communication comes from reducing the signaling of the control path. The second is the added flexibility of dynamic modification of communication trees.

Moreover, as described in paragraph 0023 of Applicants’ disclosure, in order to perform application level forwarding without maintaining group communication states at

intermediate nodes participating in the forwarding, the full distribution tree is encoded at the sender and included in each transmitted packet.

Accordingly, Applicants' disclosure discusses stateless group communication between the nodes of the distribution tree. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II. The 35 U.S.C. §112, Second Paragraph, Rejection

Claims 1, 3-8, 10-15, 17-21, 23-31 stand rejected under 35 U.S.C. §112, second paragraph. More specifically, the Office Action asserts that the claim limitation "wherein said nodes in said distributed tree lack group state information" is a negative limitation that renders the claims indefinite. Applicants respectfully disagree.

As provided in MPEP 2173.05(i), the current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph.

As further provided in MPEP 2173.05(i), a claim which recited the limitation "said homopolymer being free from the proteins, soaps, resins, and sugars present in natural Hevea rubber" in order to exclude the characteristics of the prior art product, was considered definite because each recited limitation was definite. *In re Wakefield*, 422 F.2d 897, 899, 904, 164 USPQ 636, 638, 641 (CCPA 1970). In addition, the court found that the negative limitation "incapable of forming a dye with said oxidized developing agent"

was definite because the boundaries of the patent protection sought were clear. *In re Barr*, 444 F.2d 588, 170 USPQ 330 (CCPA 1971).

Applicants submit that the boundaries of the patent protection sought are set forth definitely, albeit negatively. Specifically, the claimed invention provides the positive method step of “adding said header to a data packet to be distributed to said distribution tree, wherein said nodes in said distribution tree lack group state information” (independent claims 1, 8, 15, and 21). As such, it is Applicants’ position that the claim complies with the requirements of 35 U.S.C. 112, second paragraph. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. The Double Patenting Rejection

Claims 1, 3-7, and 28 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-8 of co-pending Application No. 10/674,335. Claims 8-27 and 29-31 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 9-32 of co-pending Application No. 10/674,335. When the present application and/or the copending applications are allowed, Applicants will file a terminal disclaimer in the allowed application(s) in regards to the other application(s). In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

IV. The Prior Art Rejections

Claims 1, 4-8, 11-14, 21, 24-29, and 31 stand rejected under 35 U.S.C. §102(b) as being anticipated by Crawley, et al. (U.S. Patent No. 5,995,503), hereinafter referred to as Crawley. Claims 3, 10, 15, 17-20, 23, and 30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Crawley, in view of Mitra (U.S. Patent No. 5,748,736).

Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention provides a method for establishing transmission headers for stateless group communication of data packets to nodes in a distribution tree. The method begins by encoding the distribution tree to produce an encoded distribution tree. Next, a header is created including the encoded distribution tree. Then the header is added to a data packet to be distributed to the distribution tree.

In the rejection, the Office Action argues that the prior art of record discloses many features of the claimed invention. However, the “ERA header” of Crawley (which the Office Action asserts teaches the “header” of the claimed invention) does not include an encoded distribution tree. Rather, the encoded distribution tree in Crawley is positioned in the “body” of the ERA. In addition, the prior art of record does not teach or suggest “stateless” group communication. Instead, the prior art references teach “stateful” group communication, wherein nodes have information regarding network links to the other nodes. Therefore, as explained in greater detail below, Applicants respectfully submit that the prior art of record does not teach or suggest the claimed invention.

A. The Rejections Based on Crawley

Applicants traverse the rejections because Crawley fails to disclose the claimed features of “creating a header including said encoded distribution tree; [and] adding said header to a data packet to be distributed to said distribution tree”. Such features are defined in independent claims 1, 8, and 21 using identical language.

First of all, the Office Action argues that the “explicit routing advertisement (ERA) header” of Crawley teaches the “header” of the claimed invention (Office Action, p. 8, item 12). However, unlike the “header” of the claimed invention, the “ERA header” of Crawley does not include an encoded distribution tree (independent claims 1, 8, 15, and 21). Instead, **in Crawley, the encoded distribution tree is positioned in the “body” of the ERA.** As explicitly stated in column 10, lines 51-53, of Crawley “[t]he adjust offset and child offset fields are used to encode the distribution tree into the ERA body”.

Furthermore, nothing within Crawley teaches or suggests that the ERA header (or the ERA body) is added to a data packet to be distributed to the distribution tree (independent claims 1, 8, and 21). Although the ERA header of Crawley “contains information that identifies a particular data flow” (Crawley, col. 10, lines 43-44), the ERA header is not added to a data packet. In Crawley, data packets do not require information from the ERA headers regarding the routing path. This is because the routing path has already been established *prior* to the initiation of the data flow in Crawley.

Accordingly, Applicants submit that the “ERA header” of Crawley (which the Office Action asserts teaches the “header” of the claimed invention) does not include an encoded distribution tree. Rather, the encoded distribution tree in Crawley is positioned in the “body” of the ERA. Furthermore, the ERA header of Crawley is not added to a data packet to be distributed to the distribution tree. Instead, the data packets do not require information from the ERA headers regarding the routing path. Therefore, it is Applicants’ position that Crawley fails to disclose the claimed features of “creating a header including said encoded distribution tree; [and] adding said header to a data packet to be distributed to said distribution tree” as defined in independent claims 1, 8, and 21.

In addition, Applicants traverse the rejections because Crawley fails to teach the claimed features “wherein said nodes in said distribution tree lack group state information”. Such features are defined in independent claims 1, 8, and 21 using identical language.

Applicants submit that Crawley does not teach “stateless” group communication; rather, Crawley discloses “stateful” group communication. More specifically, Crawley teaches “advertising the existence of network links to other nodes” (Crawley, col. 1, line 27). Thus, the nodes in Crawley have “state information” regarding the other nodes in the network.

To the contrary, as described in paragraph 0018 of the claimed invention, some protocols maintain state information at the nodes involved in a group communication session. The invention provides group communication by fully encoding communication

trees at the sender to allow stateless operation. One of the advantages of stateless group communication comes from reducing the signaling of the control path. The second is the added flexibility of dynamic modification of communication trees.

As further described in paragraph 0023 of the claimed invention, in order to perform application level forwarding without maintaining group communication states at intermediate nodes participating in the forwarding, the full distribution tree is encoded at the sender and included in each transmitted packet.

Accordingly, Applicants submit that Crawley does not teach “stateless” group communication. Instead, Crawley discloses “stateful” group communication, wherein nodes have information regarding network links to the other nodes. Therefore, it is Applicants’ position that Crawley fails to disclose the claimed features “wherein said nodes in said distribution tree lack group state information” as defined in independent claims 1, 8, and 21.

Further, it is Applicants’ position that dependent claims 4-7, 11-14, 24-29, and 31 are similarly patentable, not only because of their dependency from a patentable independent claims, but also because of the additional features of the invention they defined. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

B. The Rejections Based on Crawley and Mittra

As discussed above, Crawley fails to teach the claimed features of “creating a header including said encoded distribution tree; [and] adding said header to a data packet to be distributed to said distribution tree ... wherein said nodes in said distribution tree lack group state information”. Such features are defined in independent claim 15 using identical language. Such features are also defined in independent claims 1, 8, and 21 (from which claims 3, 10, 17-20, 23, and 30 depend upon).

Applicants further submit that Mittra does not teach or suggest headers included encoded distribution trees and nodes lacking group state information. Instead, Mittra is introduced by the Office Action for the mere purpose of illustrating decoding and re-encoding a distribution tree (Office Action, p. 12, item 15). Nevertheless, nothing within Mittra mentions headers added to data packets. Moreover, the nodes of Mittra have state information regarding the other nodes. Specifically, as described in column 2, lines 64-67, of Mittra, when a node decides to join the group, it contacts the nearest router that is acting as a GKDC which then authenticates the joining node and passes it the group key.

Further, it is Applicants’ position that dependent claims 3, 10, 17-20, 23, and 30 are similarly patentable, not only because of their dependency from a patentable independent claims, but also because of the additional features of the invention they defined. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

V. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 1, 3-8, 10-15, 17-21, and 23-31, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 50-0510.

Respectfully submitted,

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